



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/813,486

03/30/2004

Shervin Moloudi

15420US01

4921

23446 7590 07/20/2010  
MCANDREWS HELD & MALLOY, LTD  
500 WEST MADISON STREET  
SUITE 3400  
CHICAGO, IL 60661

EXAMINER

LE, NHAN T

ART UNIT

PAPER NUMBER

2618

MAIL DATE

DELIVERY MODE

07/20/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/813,486	<b>Applicant(s)</b> MOLOUDI, SHERVIN	
	<b>Examiner</b> NHAN LE	<b>Art Unit</b> 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13, 15-32 and 34-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-13, 15-18, 20-30, 32, 34, 35, 37, 39 and 40 is/are rejected.
- 7) ☐ Claim(s) 10, 19, 31, 36 and 38 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-9, 11-13, 15-18, 20-30, 32, 34, 35, 37, 39, 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admission of prior art in view of Nakatani et al (US 4,999,596) further in view of Copeland et al (US 6,542,724).

As to claims 1, 21, applicant's admitted prior art teaches generating in a transmitter, a local oscillator (LO) a signal at a particular frequency the LO signal being associated with a LO harmonic frequency signal disposed at a LO harmonic frequency (Fig.1, Fig.2, par [0004-0013]); selecting in transmitter frequency content disposed in a region around the LO harmonic frequency and (Fig.1, Fig.2, par [0004-0013]).

Applicant's admission of prior art fails to teach attenuating in said transmitter said selected frequency content disposed in said region around the LO harmonic frequency which is taught in related art by Nakatani (See col.6, lines 28-35, abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of the conventional transmitter taught by applicant's admission of prior art with the filter circuit as taught by Nakatani so as to attenuate the second harmonic of the local oscillator. The combination of Applicant's admitted prior art and Nakatani fails to teach wherein LO is differential LO. Copeland teaches wherein LO

Art Unit: 2618

is differential LO (see fig. 1, 106, col. 4, lines 31-48). Therefore, It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Copeland into system of applicant's admission of prior art and Nakatani for achieving tunable image rejection in radio signal processing device.

As to claim 2, the combination of applicant's admitted prior art, Nakatani and Copeland further teaches associating the signal with a second LO harmonic frequency signal disposed at a second harmonic frequency and selectively attenuating frequency content disposed in a second region around the LO second harmonic frequency (Nakatani, col.6, lines 28-35, abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of the conventional transmitter taught by applicant's admission of prior art with the filter circuit of Nakatani so as to attenuate the second harmonic frequency wave of the local oscillator.

As to claims 3, 24, 25, the combination of applicant's admitted prior art, Nakatani and Copeland teaches applying at least one non-linear operation to the LO signal and transmitting the applied signal (applicant's admission of prior art, Fig.1, par [0004-0005]).

As to claims 4, 26, the combination of applicant's admitted prior art, Nakatani and Copeland teaches applying at least one non-linear operation to the LO signal comprises dividing the LO signal (applicant's admission of prior art, par [0005], Fig.1).

As to claims 5, 27, the combination of applicant's admitted prior art, Nakatani and Copeland teaches applying at least one non-linear operation to the LO signal comprises

Art Unit: 2618

mixing the LO signal with a reference signal (applicant's admission of prior art, Fig.1, par [0006]).

As to claims 6, 28, the combination of applicant's admitted prior art, Nakatani and Copeland teaches applying at least one non-linear operation to the LO signal comprises amplifying the LO signal (applicant's admission of prior art, Fig.1, par [0004-0005]).

As to claims 7, 29, the combination of applicant's admitted prior art, Nakatani further and Copeland teaches the LO signal is generated by at least one of a fixed frequency oscillator, a voltage controlled oscillator, and a current controlled oscillator (applicant's admission of prior art, par [0004-0005]).

As to claims 8, 30, the combination of applicant's admitted prior art in view of Nakatani further teaches the frequency content is selectively attenuated by at least one attenuating circuit (Nakatani, col.6, lines 28-35, abstract).

As to claim 9, the combination of applicant's admitted prior art, Nakatani and Copeland teaches the at least one attenuating circuit comprises at least one of an integrated component and a discrete component (Nakatani, col.6, lines 28-35, abstract, Fig.6 (a)).

As to claim 15, the combination of applicant's admitted prior art in view of Nakatani and Copeland further teaches the LO signal comprises a quadrature (applicant's admission of prior art, Fig.1, Fig.2, par [0004-0013]).

As to claim 16, the combination of applicant's admitted prior art, Nakatani and Copeland further teaches the selective attenuating comprises cancelling frequency

Art Unit: 2618

content disposed in the region around the LO harmonic frequency (Nakatani, col.6, lines 28-35, abstract).

As to claim 17, the combination of applicant's admitted prior art, Nakatani and Copeland further teaches the cancelling frequency content disposed in the region around the LO harmonic frequency comprises cancelling frequency content disposed only at the LO harmonic frequency (Nakatani, col.6, lines 28-35, abstract).

As to claim 18, the combination of applicant's admitted prior art , Nakatani and Copeland further teaches the selective attenuating comprises notching frequency content disposed in the region around the LO harmonic frequency (Nakatani, col.6, lines 28-35, abstract).

As to claim 20, the combination of applicant's admitted prior art, Nakatani and Copeland further teaches the selective attenuating comprises bandstopping frequency content disposed in the region around the LO harmonic frequency (Nakatani col.6, lines 28-35, abstract).

As to claims 11, 12, 13, 22, 23, the combination of applicant's admitted prior art, Nakatani and Copeland further teaches buffering the signal prior to selectively attenuating the frequency content and wherein the buffering is performed by a buffer and wherein the selective attenuating of the frequency content is performed within the buffer (see Copeland fig. 1, BUF, col. 4, lines 31-48).

As to claim 32, Applicant's admitted prior art teaches a signal generator in a transmitter, said signal generator generates a signal at a particular frequency, the LO signal being associated with a LO harmonic frequency signal disposed at a LO

Art Unit: 2618

harmonic frequency (Fig.1, Fig.2, par [0004-0013]). Applicant's admission of prior art fails to teach attenuating in said transmitter said selected frequency content disposed in said region around the LO harmonic frequency which is taught in related art by Nakatani (See col.6, lines 28-35, abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of the conventional transmitter taught by applicant's admission of prior art with the filter circuit as taught by Nakatani so as to attenuate the second harmonic of the local oscillator. The combination of Applicant's admitted prior art and Nakatani fails to teach wherein LO is differential LO. Copeland teaches wherein LO is differential LO and wherein the buffer that buffers the LO signal (see fig. 1, 106, BUF, col. 4, lines 31-48). Therefore, It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Copeland into system of applicant's admission of prior art and Nakatani for achieving tunable image rejection in radio signal processing device.

As to claim 33, the combination of applicant's admitted prior art, Nakatani and Copeland further teaches the signal is a differential signal (Copeland, col.4, lines 31-48).

As to claims 34, 35, the combination of applicant's admitted prior art, Nakatani and Copeland teaches the signal is quadrature and the signal generator comprises a differential signal generator (Copeland, col.4, lines 31-48).

As to claim 37, the combination of applicant's admitted prior art, Nakatani and Copeland teaches the buffer comprises a harmonic trap the harmonic trap being

Art Unit: 2618

adapted to attenuate the frequency content disposed in the region around the harmonic frequency (Copeland, col.4, lines 31-48).

As to claim 39, 40, the combination of applicant's admitted prior art, Nakatani and Copeland teaches the buffer is adapted to band stop the frequency content disposed in the region around the harmonic frequency and the buffer is adapted to notch the frequency content disposed only at approximately the harmonic frequency (Copeland, col.4, lines 31-48).

***Allowable Subject Matter***

2. Claims 10, 19, 31, 36, 38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to claims 10, 31, the applied reference fails to teach wherein the at least one attenuating circuit comprises at least one harmonic trap.

As to claim 19, the applied reference fails to teach wherein the notching frequency content comprises notching frequency content disposed only at the LO harmonic frequency.

As to claim 36, the applied reference fails to teach wherein the buffer comprises a differential pair of transistors, the differential pair of transistors being adapted to receive the LO differential signal.

As to claim 38, the applied reference fails to teach wherein the harmonic trap is disposed across a differential output of the buffer.

***Response to Arguments***



Art Unit: 2618

3. Applicant's arguments with respect to claims 1-13, 15-32, 34-40 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NHAN LE whose telephone number is (571)272-7892. The examiner can normally be reached on 8:00-5:00 (Mon-Fri).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc Nguyen can be reached on 571--272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nhan T. Le/  
Patent Examiner, Art Unit # 2618  
Nhan T Le